Title: Fraction Action

Link to Outcomes:

- **Problem Solving** Students will demonstrate the ability to rename and simplify fractions to solve problems.
- **Communication** The students will read, write, and discuss fractions.
- **Reasoning** Students will deduce reasonable methods of renaming fractions and mixed numbers.
- **Connections** Students will apply fractions to their interest in basketball.
- **Number Sense & Relationships** Students will see simplest form as an equivalent fraction.

Brief Overview:

Students will rename mixed numbers and improper fractions using basketball as a theme. They will also put fractions and mixed numbers in simplest form. They will use counters, fraction circles, and small basketball hoops to accomplish these tasks.

Grade/Level:

This lesson is intended for Grade 5.

Duration/Length:

This lesson take three 40 minute class periods over 3 days.

Prerequisite Knowledge:

The ability to identify fractions, find equivalent fractions, identify mixed numbers, identify improper fractions, multiples, and common denominators, and familiarity with coordinate geometry.

Objectives:

- Students will be able to change an improper fraction to a mixed number.
- Students will be able to change a mixed number to an improper fraction.
- Students will be able to put fractions in simplest form and show the method used.

Materials/Resources/Printed Materials:

- Fraction Circles
- Fraction Bars
- Construction paper
- Multiplication chart
- Counters
- Overhead
- Scissors
- Paper plates
- Small basketball hoop and nerf ball

Development/Procedures:

- Give students one paper plate and construction paper. Have them trace the plate five times to make five basketballs. Have students cut them out. Fold each basketball into eighths and cut one apart. Review identification of mixed numbers and fractions to eighths.

- Begin to change mixed numbers to fractions using basketballs. Students work in groups of three or four. Instructor shows a mixed number on the board. The students must work together to change to an improper fraction using the basketballs.

- After discussion of pictures and written work students will deduce a mathematical method for renaming mixed numbers.

- Students will practice several problems using basketballs. Students complete the top of worksheet # 1 at this time.

- After practice page, students work in groups to come up with a way to do the reverse (solve improper to mixed).

- After a discussion of methods the instructor reviews the proper method for completing a worksheet (finish Worksheet # 1).

- Review renaming of mixed numbers and improper fractions. Instructor divides students into four teams. Each team is given a flash card with an improper fraction or a mixed number to rename. If it is correct , that team shoots the basketball. Play to 10.

- Pass out bags of basketball counters for groups of two students each.

- Instructor will name a fraction and show it on the overhead. The procedure for finding the simplest form with counters will be shown.

- Do "Think-Pair-Share" with Worksheet # 2.

- Each student is given a fraction card and must find its simplest form by walking around the room looking at other cards. Students must work together and share how they found their match using the overhead and counters.

- Complete "Free-Throw " problem solving evaluation.

Evaluation:

Teacher will observe students making mixed numbers and improper fractions in a group situation.

Students will play "Fraction Action Basketball."

Students will play "Fraction Action Match Up."

Students will complete "Free -Throw" problem solving (Worksheet # 3) and a given journal topic (Worksheet # 4) explaining the procedures for renaming mixed numbers and fractions.

Extension/Follow Up:

Problem solving is to be used throughout the unit.

Have students make a list of their activities during a given day. Estimate the number of hours spent doing each activity. Represent each activity as a fractional part of a 24-hour day. Label sections of the circle graph for each activity. Color the correct number of parts for each activity. Put all the fractions in simplest form. Find which activity on which they spent most of their time. Share graphs with the class.

Tangram Coordinates: students must use coordinates to plot points forming tangram pieces. Students will find area in fraction form, and make sure their fractions are represented in simplest form. (See attached Tangram Coordinates Worksheet).

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Name: _____ Date:_____ #1

Fraction Action Worksheet # 1

Renaming Mixed Numbers and Improper Fractions

Rename each mixed number as an improper fraction.

1. **6** 1/3 =____
2. **11** 3/9 = ____
3. **9** 4/8 =____
4. **6** 5/9 = ____
5. **10** 3/7 =____
6. **4** 7/10 = ____
7. **8** 2/5 =____
8. **2** 9/12 = ____
9. **3** 3/6 =____
10. **5** 1/8 =____

Rename each improper fraction as a mixed number.

11. 34/6=____
12. 13/7=____
13. 97/8=____
14. 43/5=____
15. 62/10=____
16. 22/11=____
17. 55/4=____
18. 31/3=____
19. 73/8=____
20. 25/6=____

Name:_____ Date:_____ #2

Fraction Action Worksheet # 2

Simplest Form

Put each fraction in simplest form. Draw Pictures to help find the answer.

Example: 2/4= **/**** = one group of two in the numerator,
Two groups of two in the denominator
2/4=1/2

1. 6/14 =____
2. 4/6 =____
3. 12/16 =____
4. 15/25 =___
5. 3/15 =____
6. 7/9 =____
7. 6/9 =____
8. 10/18 =____
9. 16/36 =____
10. 9/12 =____

Write **yes** if the fraction *is in simplest form*. Write **no** if it is *not* in simplest form.

1. 8/12 _____
2. 3/5 _____
3. 7/11 _____
4. 3/12 _____
5. 8/16 _____
6. 12/30 _____
7. ½ _____
8. 5/14 _____
9. 28/42 _____
10. 9/16 _____

Name: _____ Date: _____ #3

Fraction Action Worksheet # 3

Action Fractions

Free Throw Problem Solving

The Lakers are practicing free throws. Each player takes 10 shots. Player #1 makes 3 of his throws. Player #2 makes 6 of his throws. Player #3 makes 5 of his throws. Player #4 makes 2 of his throws, and player 5 makes 4 of his throws. Find the fraction for the number of throws each player made. Then put each fraction into simplest form. Draw a chart to show your data and the method you used to solve this problem.

Draw Chart Here:

Write your own problem using fractions. Include putting fractions in simplest form and renaming. Give your paper to a friend to solve.

_____

_____

_____

_____

_____

Name:_____ Date: _____ # 4

Fraction Action Worksheet # 4

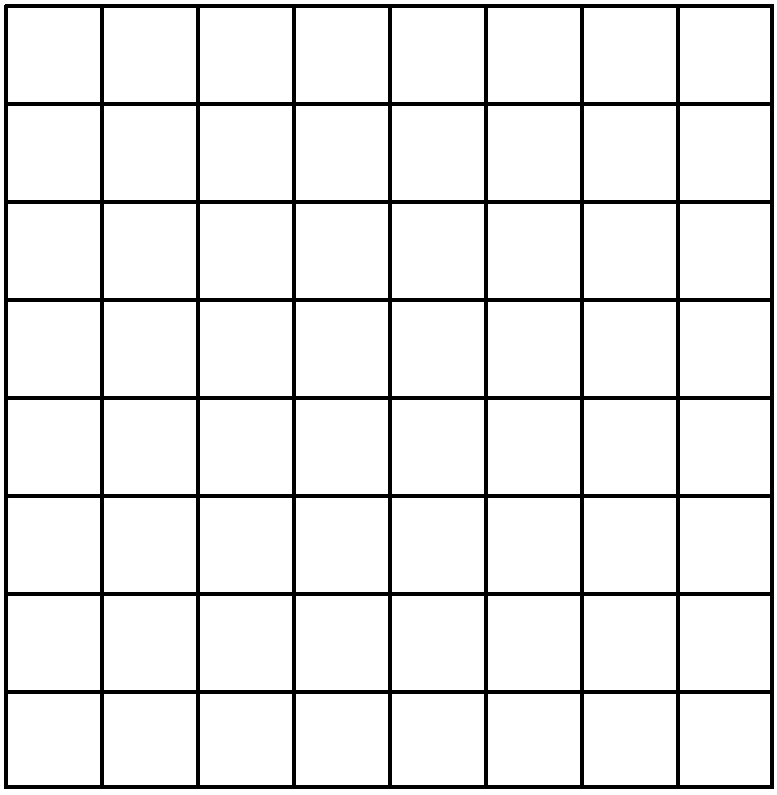
Journal Entry:

Explain procedures for renaming mixed numbers and fractions. Draw pictures and show examples to prove your work.

Extension/Follow Up Worksheet # 1

Tangram Coordinates

Form the Tangram by connecting the coordinates.
Find the area of each Tangram piece in fraction form. Simplify each fraction.



1. (8,0) and (0,8) Lift pencil.
2. (4,0) and (0,4) Lift pencil.
3. (2,2) and (8,8) Lift pencil.
4. (2,2) and (2,6) Lift pencil.
5. (4,0) and (6,2) Lift pencil.